What is claimed is:

1. An optical resonator comprising:

a transparent lower substrate for light penetration;

a plane mirror formed at one surface of the lower substrate;

an upper substrate coupled to the lower substrate with a certain gap; and

a concave mirror formed at one surface of the upper substrate for forming a resonance cavity of a hemispherical shape with the plane mirror.

2. The optical resonator of claim 1, wherein a curvature of the concave mirror is larger than a gap of the resonance cavity of a hemispherical shape, that is, a distance between the concave mirror and the plane mirror.

3. The optical resonator of claim 1, wherein the concave mirror is formed by alternately stacking hetero dielectric thin film layers having different refractive indexes.

4. The optical resonator of claim 1, wherein the plane mirror is a semitransparent mirror formed by alternately stacking hetero dielectric thin film layers having different refractive indexes or formed of a metallic thin film layer.

5. The optical resonator of claim 1, wherein a anti-reflecting layer is coated on one surface of the lower substrate onto which incident light is made to be incident.

6. An optical resonator comprising:

a transparent lower substrate for light penetration;

a plane mirror formed at one surface of the lower substrate;

an upper substrate coupled to the lower substrate with a certain gap;

a concave mirror formed at one surface of the upper substrate for forming a resonance cavity of a hemispherical shape with the plane mirror; and

a micro actuating means for controlling a gap of the resonance cavity.

7. The optical resonator of claim 6, wherein the upper substrate comprises:

a fixed frame coupled to an edge of one surface of the lower substrate;

a movable part disposed in the fixed frame and having the concave mirror at one surface thereof; and

a plurality of elastic supporting elements for making the movable part be elastically suspended at the fixed frame.

8. The optical resonator of claim 7, wherein the micro actuating means comprises:

a first electrode formed at one surface of the movable part that the concave mirror is formed;

a second electrode formed at the lower substrate 10 to face the first electrode with a certain gap; and

a voltage source electrically connected to the first and second electrodes for generating an electrostatic force between the two electrodes.

9. The optical resonator of claim 6, wherein a position of the concave mirror is a position where a restoration force of the plurality of elastic supporting elements which is increased in proportion to a displacement of the movable part becomes equal to said electrostatic force.

10. The optical resonator of claim 6, wherein a curvature radius of the concave mirror is larger than a distance between the concave mirror and the plane mirror.

11. The optical resonator of claim 6, wherein the concave mirror is formed by alternately stacking hetero dielectric thin film layers having different refractive indexes.

12. The optical resonator of claim 6, wherein the plane mirror is a semitransparent mirror formed by alternately stacking hetero dielectric thin film layers having different refractive indexes or formed of a metal thin film layer.

13. The optical resonator of claim 6, wherein a anti-reflecting layer is coated on one surface of the lower substrate onto which incident light is made to be incident.

14. The optical resonator of claim 6, wherein the plurality of elastic supporting elements are symmetrically formed as a radial shape between the fixed frame and the movable part so that the concave mirror can be moved in a vertical direction.

15. An optical filter comprising:

a transparent lower substrate for light penetration;

a plane mirror formed at one surface of the lower substrate;

an upper substrate coupled to the lower substrate with a certain gap;

a concave mirror formed at the upper substrate for forming a resonance cavity of a hemispherical shape with the plane mirror;

a micro actuating means for controlling a gap of the resonance cavity;

an input optical fiber disposed below the lower substrate for passing input light;

an output optical fiber disposed at a periphery of the input optical fiber for passing output light;

an optical fiber alignment/ assembly unit for aligning the input optical fiber and the output optical fiber; and

a lens disposed between the lower substrate and the optical fiber alignment/assembly unit for transmitting input light emitted from the input optical fiber to the resonance cavity and output light emitted from the resonance cavity to the output optical fiber.

16. A fabrication method of a concave mirror of an optical resonator comprising the steps of:

forming an etch masking layer at both surfaces of a silicon substrate;

patterning an etch window at one etch masking layer surface of the both surfaces;

etching the silicon substrate through the etch window and thereby forming

a cavity of a hemisphere shape;

selectively removing the etch masking layer;

forming a reflecting layer on a surface of the silicon substrate where the hemispherical cavity is formed;

forming a thick photo resist layer on the reflecting layer and then planarizing;

polishing the thick photo resist layer and the reflective layer so as for the thick photo resist layer to remain inside the hemispherical cavity.

selectively removing the thick photo resist layer remaining inside the hemispherical cavity.

17. The method of claim 16, wherein the hemispherical cavity is formed by using an isotropic wet etching.

18. The method of claim 16, wherein the hemispherical cavity is formed by using a reactive ion etching method in SF_6 activated as a plasma state.

19. The method of claim 16, wherein the etch masking layer for forming the hemispherical cavity is a metal material such as gold.

20. The method of claim 16, wherein the reflecting layer is formed by alternately stacking hetero dielectric thin film layers having different refractive indexes such as a silicon oxidation layer, a silicon nitride layer, a titanium oxide layer and etc.